Let's protect our earth

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF HAZARDOUS WASTE MANAGEMENT
LANCE R. MILLER, DIRECTOR
CN 028
Trenton, N.J. 08625-0028
(609) 633-1408
Fax # (609) 633-1454

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NO. P 508 518 013

07 FEB 1991

Cris Anderson, Manager
Environmental Affairs
L.E. Carpenter Company
1301 E. Ninth Street, Suite 3600
Cleveland, OH 44114

Dear Mr. Anderson:

Re: L.E. Carpenter ACO, dated September 26, 1986
Draft Baseline Risk Assessment, dated November 20, 1990

The New Jersey Department of Environmental Protection (Department/NJDEP) has reviewed the above cited document prepared by Roy F. Weston, West Chester, PA, and on consultation with United States Environmental Protection Agency, Region II. February 4, 1991, approves the document providing the following comments are incorporated in the revised Risk Assessment Report.

General Comments

1. Overview, page 1-1, para. 3

The document states that the Risk Assessment is based on site data presented in the "Revised Report of Remedial Investigation Findings, June 1990" and the "Report of Supplemental Sampling Findings, November 1990". In reviewing the data presented in the Risk Assessment Report, it does not appear that the data from the supplemental sampling investigation (SSI) was included in the Risk Assessment. L.E. Carpenter must be cautioned, however, to use the SSI data "at risk" until the Department has completed its QA evaluation.

2. Data Presentation

Contract Required Detection Limits (CRDL) by media should be presented. The concentration used for non-detect for purposes of averaging concentrations must be reported.

Some discussion is needed to explain why certain inorganic, i.e., As, Se, contaminants are found in the ground water in elevated levels but not in the soils. Also needed is a discussion as to why arsenic (As)

background concentration of 18 ppm is elevated above the normal range of 7-14 ppm.

It may be appropriate to eliminate those contaminants of concern that are essential nutrients and below ARARs.

General Comments: Ecological

3. The ecological risk assessment follows the guidance set forth by NJDEP and agrees with the methodology utilized for risk characterization and the toxicity data selected for identifying environmental toxicity. The document should, however, contain more narrative descriptions of the levels of contamination found. For example, the highest contamination found in the sediments occurred at station SS-2, SS-10, and SS-3. The report should discuss whether any concentration gradients are identifiable in the river and whether surface soil contamination patterns suggest surface runoff as a source of sediment contamination.

4. It is unclear which surface water and sediment data were averaged and presented in Tables 6-3 and 6-4. This information must be provided in the report.

5. Risk Characterization, page 6-13

The Environmental Assessment demonstrates that a full delineation of contamination in the Rockaway River has not been completed. Since there is obvious data gaps relative to the sediments in the Rockaway River near the site, additional sampling of sediments is required in order to establish whether concentration gradients are evident in the Rockaway. (It is inappropriate to base conclusions regarding background contaminant concentrations based on one sample collected from the upstream pond.)

Additional sediment sampling had previously been required in response to the Supplemental Remedial Investigation Report (see E. Kaup letter to L.E. Carpenter, December 18, 1990).

A minimum of three (3) locations must be sampled between sample point SS/SW-2 and the Wharton Enterprises property (DEP will direct the precise location of each individual sample point). The three locations must be sampled at discrete intervals (0-6", 18-24" and 30-36") and analyzed for BN+10, VO+10 and the following inorganics; antimony, copper, lead and mercury. Also, particle grain size and total organic carbon content of sediments must be determined.

6. Exposure Assessment

   a. Inhalation Pathway - As expressed by Weston in the scope of work letter date August 8, 1990, "If the benzene and several metals found previously in air can be established to be site-related substances or if subsequent air sampling shows the presence of other site related substances, then an exposure analysis of the air pathway is relevant." There is no discussion of the relevance of air sampling data to site related concentrations. NJDEP

believes this pathway to be insignificant and should not be carried through as a relevant exposure pathway. The risk assessment, however, must include a thorough discussion of air sampling data as it relates to soil contamination and a justification for eliminating the inhalation exposure pathway.

b. Ground Water Pathway - Page 3-2 states that "Although two domestic wells have been identified within a half-mile downgradient of the site, risk from current use of these wells cannot be estimated because of insufficient data." Insufficient data is not an adequate explanation to eliminate a current use exposure scenario that potentially could contribute significantly to total risk. (See NJDEP comments dated August 28, 1990.) This issue of risk to these domestic wells must be investigated and resolved immediately.

c. Soil Pathway - This pathway for the present-use for workers is unclear. 3.2.1.3; Incidental Soil Ingestion on page 3-5 states that since no work is presently performed outside, incidental ingestion of contaminated soil is not an applicable pathway, yet in 5.5, the Summary on page 5-23 indicates that under a present-use scenario, workers are exposed to soil contaminated with Arochlor 1254 and DEHP and are presented with a carcinogenic risk of greater than one in a hundred thousand. These differing statements must be corrected; the Department suggests employing worker soil ingestion in the present-use scenario.

d. Equations and Assumptions - All equations for calculating intakes are incomplete and must be revised to include exposure frequency (EF) and exposure durations (ED) averaging time (AT), where AT is equal to exposure duration for non-carcinogens and 70 years for carcinogens). This should effect the conclusion that dermal absorption contributes the most to the Hazard Index and carcinogen risk, for further discussion on this issue, see risk characterization section herewith. All assumptions should also be stated under the equation. Soil ingestion rates of 100 mg for adults and 200 mg for children should be used. EPA Supplemental guidance for Standard Exposure Factors Final Draft December 1990 recommends 54g/day for recreational fishing 365 days/year for 30 years. Inhalation of soil dust should be included in the incidental soil ingestion rates (ingestion of soil and dust) and therefore does not need to be evaluated separately.

8. Toxicity Assessment - Dermal slope factors were derived for each carcinogen by dividing its respective oral slope factor by an appropriate gastrointestinal absorption factor. This is inappropriate. Dermal intakes should be included in total oral intake.

9. Risk Characterization - Carcinogenic risk does not include an Exposure Duration Adjustment (EDA), see EPA guidance for further discussion. As stated on page 5-5 "For both the worker and the trespasser, dermal exposure to soil contributes 97 percent to total risk. Intuitively, dermal absorption should not contribute to the greatest percent risk and the adverse health effects associated with this site. While the

dermal absorption number of 10% for absorption for inorganics in soil may be somewhat high, other parameters in the equation for dermal absorption can be adjusted to be more realistic. NJDEP considers dermal absorption of inorganics to be minimal.

10. Uncertainty Analysis - The level of discussion in what is termed "sensitivity analysis" needs to be expanded to include discussions on both generic uncertainty in the risk assessment process as well as site specific uncertainty. There is uncertainty associated with each chapter of the assessment. Many issues can be discussed qualitatively to determine if the impacts could underestimate or overestimate the total risks.

Specific Comments

1. Tentatively Identified Compounds, page 2-3

   The results of the soil sampling data demonstrate substantial contamination of soils from base neutral compounds. Although the targeted base neutral compounds have been included in the risk characterization, there is a concern that the exclusion of the non-targeted BN's will minimize the risk through the soil exposure pathway.

   The elimination of non-targeted BN's must be addressed qualitatively in the uncertainty section, (i.e. overestimate or underestimate total risk).

2. Page 2-6 discusses the use of the upper 95% confidence limit employed for shallow ground water and soils. These calculations were not employed in the Risk Assessment.

3. Page 6-6, Paragraph 6

   The New Jersey Natural Heritage Program should be consulted to determine whether historical records exist of any New Jersey listed rare/threatened species occurring in the area surrounding this site.

4. Page 6-11, Paragraph 2

   The statement suggesting that the elevated levels of lead found in surface water may be the result of the proximity of roads, railroad tracks, and urban surroundings must be substantiated. This section must include a narrative describing the levels of lead found at each station and describing any gradients found in the sampling. (Table 3-19 of the Supplemental RI shows the highest levels of lead occur at SW-3 with lower levels found at SW-10 and SW-2) The report should also discuss the potential of surface runoff from the site to contribute to contamination at SW-3 and discuss the surface soil data adjacent to the river as it relates to sediment and surface water results.

5. Page 6-12, Paragraph 1

The statement that organic contamination found in sediment may have originated from sources other than the site must be substantiated. The compounds listed in this paragraph were almost always found at much higher concentrations at stations in the Rockaway River (SS-2, SS-3) than at the upstream location (SS-1). If upstream sources are suspected, they should be identified and the concentration gradient between locations SS-1, SS-2, and SS-3 explained and discussed.

6. Page 6-13

The conclusion should identify the areas of greatest environmental concern based upon concentrations of contamination and excedances of environmental toxicity criteria. This section should discuss whether the sediment and surface water contamination is impairing or precluding the attainment of the designated use of the Rockaway River as New Jersey Trout Maintenance waters (FW2-TM). Additionally, this section should identify data gaps and if further investigations can be conducted to reduce the uncertainty in the ecological risk assessment, these should be suggested.

7. Page 6-20

The ER-L for mercury should be listed as 1.5E-01.

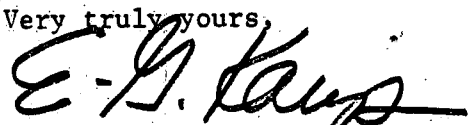
8. Appendix A

The source(s) or references(s) for the KOC values used to calculate the interstitial water concentrations should be presented.

L.E. Carpenter should address the above comments and respond to the Department with needed modifications/addition within ten (10) working days after receipt of these comments. Relative to the required sampling that was omitted previously, please submit a workplan and a schedule for the sampling event and the analytical results submittal with L.E. Carpenter's responses to the Department's comments.

Should you have any comments you may contact me at (609) 633-1455.

Very truly yours,



Edgar G. Kaup, P.E. Case Manager
Bureau of Federal Case Management

EGK:mcs

c: G. Blyskun, BGWPA/DWR
J. Josephs, USEPA II
W. Lowry, BEERA/ETRA
J. Prendergast, BEERA/